

U.S. Patent Application Serial No. 09/752,939
Applicant: Gibbins, Bruce L., *et al.*

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An oxygen-delivery matrix, comprising, a biocompatible, single unit construct formed matrix material, formed prior to gas incorporation, comprising a swellable polymer network and a catalyst, wherein the catalyst generates oxygen gas when the formed matrix is contacted by a reactant solution. ~~multiple closed cells comprising enriched concentrations of oxygen, wherein the oxygen is generated in the matrix in the manufacture of the matrix;~~
~~and wherein the closed cells are dispersed throughout the polymer network at sites where a catalyst was entrapped in the matrix.~~
2. (Original) The matrix of Claim 1, further comprising at least one active agent.
3. (Original) The matrix of Claim 1, wherein the biocompatible matrix comprises polyacrylamide.
4. (Previously Presented) The matrix of Claim 1, wherein the matrix further comprises a non-gellable polysaccharide.
5. (Canceled)
6. (Currently Amended) The matrix of Claim [1] 37, wherein the generation of oxygen results from the decomposition of a peroxide.
7. (Canceled) The matrix of Claim 6, wherein the decomposition of the peroxide is caused by the catalyst.
8. (Currently Amended) The matrix of Claim 1, wherein the catalyst is a carbonate salt, a salt of iodide, manganese dioxide or cupric chloride, or an enzyme.

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9. (Canceled) The matrix of Claim 1, wherein the catalyst is a salt of iodide, manganese dioxide or cupric chloride.

10. (Canceled) The matrix of Claim 1, wherein the catalyst is an enzyme.

11. (Canceled)

12. (Previously Presented) The matrix of Claim 1, wherein the polymer network comprises a natural or synthetic polymer.

13-20. (Cancelled)

21. (Previously Presented) The matrix of Claim 2, wherein the active agent comprises gases, anti-microbial agents, anti-fungal agents, anti-bacterial agents, anti-viral agents, anti-parasitic agents, mycoplasma treatments, growth factors, proteins, nucleic acids, angiogenic factors, anesthetics, mucopolysaccharides, metals, pharmaceuticals, chemotherapeutic agents, herbicides, growth inhibitors, anti-fungal agents, anti-bacterial agents, anti-viral agents and anti-parasitic agents, wound healing agents, growth promoters, indicators of change in the environment, enzymes, nutrients, vitamins, minerals, carbohydrates, fats, fatty acids, nucleosides, nucleotides, amino acids, sera, antibodies and fragments thereof, lectins, immune stimulants, immune suppressors, coagulation factors, neurochemicals, cellular receptors, antigens, adjuvants or radioactive materials.

22. (Previously Presented) The matrix of Claim 21, wherein the gases comprise nitrogen, carbon dioxide, and noble gases.

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23. (Previously Presented) The matrix of Claim 21, wherein the antimicrobial agent comprises isoniazid, ethambutol, pyrazinamide, streptomycin, clofazimine, rifabutin, fluoroquinolones, ofloxacin, sparfloxacin, rifampin, azithromycin, clarithromycin, dapsone, tetracycline, erythromycin, ciprofloxacin, doxycycline, ampicillin, amphotericin B, ketoconazole, fluconazole, pyrimethamine, sulfadiazine, clindamycin, lincomycin, pentamidine, arovaquone, paromomycin, diclazaril, acyclovir, trifluorouridine, foscarnet, penicillin, gentamicin, ganciclovir, iatroconazole, miconazole, Zn-pyrithione, silver salts, chloride, bromide, iodide or periodate.
24. (Previously Presented) The matrix of Claim 21, wherein the growth factor agents comprise basic fibroblast growth factor, acidic fibroblast growth factor, nerve growth factor, epidermal growth factor, insulin-like growth factors 1 and 2, platelet derived growth factor, tumor angiogenesis factor, vascular endothelial growth factor, corticotropin releasing factor, transforming growth factors α and β , interleukin-8, granulocyte-macrophage colony stimulating factor, interleukins, or interferons.
25. (Previously Presented) The matrix of Claim 21, wherein the mucopolysaccharides comprise heparin, heparin sulfate, heparinoids, dermatin sulfate, pentosan polysulfate, chondroitin sulfate, hyaluronic acid, cellulose, agarose, chitin, dextran, carrageenan, linoleic acid, or allantoin.
26. (Previously Presented) The matrix of Claim 21, wherein the proteins comprise collagen, cross-linked collagen, fibronectin, laminin, elastin, or cross-linked elastin.
27. (Previously Presented) The matrix of Claim 21, wherein the metals comprise zinc or silver.
28. (Previously Presented) The matrix of Claim 1, wherein the matrix comprises a stranded configuration.

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29. (Previously Presented) The matrix of Claim 27, wherein the polymer network comprises a natural or synthetic polymer.
30. (Previously Presented) The matrix of Claim 2, wherein the polymer network comprises collagen, gelatin, chondritin, calmodulin, cellulose, agar, agarose, animal hide, hyaluronic acid, dextran, alginate, polylysine, resorbable polymers, polyacrylamide, polymethacrylate, polyacrylate, polybuterate, polyurethane foam, polyether, silastic, silicone elastomer, rubber, nylon, vinyl or cross-linked dextran.
31. (Previously Presented) The matrix of Claim 1, further comprising a water loss control agent comprising petrolatum, glycolipids, ceramides, free fatty acids, cholesterol, triglycerides, sterylesters, cholesteryl sulfate, linoleic ethyl ester or silicone oil.
32. (Previously Presented) The matrix of Claim 1, further comprising a plasticizer comprising glycerol, water, propylene glycol or butanol.
33. (Previously Presented) The matrix of Claim 1, further comprising a hydration control agent comprising isopropyl alcohol, ethanol, glycerol, butanol, or propylene glycol.
34. (Previously Presented) The matrix of Claim 4, wherein the non-gellable polysaccharide is guar gum.
35. (Currently Amended) The matrix of Claim ~~8~~ 10, wherein the enzyme is catalase.
36. (Previously Presented) The matrix of Claim 1, wherein the polymer network comprises collagen, gelatin, chondritin, calmodulin, cellulose, agar, agarose, animal hide, hyaluronic acid, dextran, alginate, polylysine, resorbable polymers, polyacrylamide, polymethacrylate, polyacrylate, polybuterate, polyurethane foam, polyether, silastic, silicone elastomer, rubber, nylon, vinyl or cross-linked dextran.

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37. (New) The oxygen delivery matrix of Claim 1, comprising the biocompatible, single unit construct formed matrix and oxygen gas incorporated therein after contacting the formed matrix with the reactant solution.

38. (New) A gas delivery device, comprising a biocompatible, single unit construct formed matrix, formed prior to gas incorporation, comprising a swellable polymer network and a catalyst, wherein the catalyst generates a gas when the formed matrix is contacted by a reactant solution.

39. (New) The gas delivery device of Claim 38, comprising the biocompatible, single unit construct formed matrix and a gas incorporated therein after contacting the formed matrix with the reactant solution.